

Description:

Dataset is the result of annual spring monitoring of approximately 48 long-term vegetation transects, in Arches National Park, Natural Bridges National Monument, Hovenweep National Monument, and all three districts of Canyonlands National Park. Each transect consists of 100 (0.5m x 0.5m) quadrats, usually arranged in two lines of 50 quadrats each. Frequency and percent cover are recorded in the field for each substrate type and each vascular plant species present, in each quadrat. Dataset consists of summary data for every year, and raw data for individual quadrats for 1998 to present. In Canyonlands, approximately 165 transect surveys in the Island in the Sky District were completed by summer of 2001, 150 in the Maze District, and 80 in the Needles District. Each transect survey consists of a frequency record and cover record for each plant species and ground cover component present, on each of 100 quadrats. A transect may record up to over 50 plant species, or as few as eight, plus five to nine ground-cover components.

Purpose:

The purpose is to provide baseline vegetation information, and to document vegetation trends and natural vegetation variability, in a variety of vegetation communities in each of the parks and districts of the Southeast Utah Group.

Quality Report:

Most of the transects were established between 1983 and 1987, and most have been monitored each spring since. A few transects have been dropped, notably those located in riparian areas, where a separate data protocol was adopted. A few transects have been added in later years, notably those in the Lost Spring Canyon addition to Arches, in 1999-2001, and in Hovenweep National Monument, in 1999. (Hovenweep was added to the Southeast Utah Group in late 1998.) Quality has improved through the years as this large vegetation-monitoring project has evolved. Locations are documented by written descriptions, photographs, and GPS data, and transect ends are marked by rebar. By the end of the 1997 field season, nails had been added to two corners of each quadrat; prior to that time different years of data from one transect might represent plants and substrate in the same general location rather than the exact same 100 quadrats. A metal detector has been used to relocate the nails since 1997, resulting in fewer lost nails. A few nails are still lost each year (less than 0.5 percent), and must be relocated.

Plant identifications are correct to species level in most cases. A few are identified only to genus or even family, or are labeled as unknowns. Misidentification or less exact identification is most likely to occur in the following situations: on transects surveyed earliest and latest in the flowering season, for plants that do not bloom in the spring and are not easily identifiable when not in bloom; and for plants difficult to identify to species level in the field (often one of several similar species within a genus). In summary, though, most species identifications are reliable, and all but a few identifications are reliable to genus level.

Field staff is trained in the methods of the program. Though experience and plant knowledge naturally varied among field biologists and biological technicians, in general staff were well qualified and each year that an individual stayed with the program their field identification skills improved. Three primary lead biologists, Jayne Belnap, Tara Williams and Charlie Schelz, a few biotechnicians (notably Linda Whitham, 1995-2000), and several volunteers have been involved in the surveys over the years. The current lead biologist, Charlie Schelz, has been with the program since 1997.

Transects are located in areas rarely visited by park visitors, to minimize the variable of human impact. In addition, efforts have been made to minimize researcher impacts to the transect areas (especially the fragile biological soil crusts) by keeping crew numbers at or below three, by moving other biological surveys away from the transect locations, and by detouring around the transect line except when actual work was being performed.

Hand-held computers were used to collect data in the field for many of the transects from 1995 to 2000. The program used from 1995 to 1997, Lotus 1-2-3, summarized data as it was entered, so no individual quadrat data is available for most transects from these years. A new Velo hand-held computer utilizing Excel was used on many transects from 1998 to 2000. Individual quadrat data is available for these. Due to difficulties in reading the computer screen in bright sunlight, and dangers of losing data, the program returned to full use of paper data sheets in 2001.

Location: Transects being monitored as of 2001 include 8 in Needles, 8 in the Maze & 13 in Island in the Sky.

Keywords: vegetation; plants (Plantae); vegetation types; biological soil crusts; transects; Arches National Park, UT; Canyonlands National Park, UT; Natural Bridges National Monument, UT; Hovenweep National Monument, UT-CO; I&M

Begin-End Date: 6/11/1983 - **Single Date:** **Updates:** Annually **Status:** Active

Format: MS Excel spreadsheets, MS Word documents, hardcopy field forms, **File Size:** 211 photographs.

File Location: SEUG computer network: RM_Net\Charlie\I&M\Vegetat; and file cabinet C, Biologist office

Comments: Related electronic &/or paper documents include a table of which years each transect was censused, photographs were taken, & data was analyzed; descriptions of locations, field & analysis methods, & veg. communities; data sheets; and species lists.

Related Documents and Data:

doc.	Schelz, Charlie and Linda Whitham	1999	Vegetation long-term monitoring: Annual report, 1999
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Frequency and cover of plant species and substrate on Long-Term Monitoring vegetation transects in SEUG parks

DS-SEUG-007.4
Botany

doc.	Resource Management, SEUG	1993	Analysis of vegetation trends, Arches and Canyonlands National Parks, and Natural Bridges National Monument, 1987-1993
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doc.	Resource Management, SEUG	1990	Analysis of vegetation trends, Arches and Canyonlands National Parks, and Natural Bridges National Monument, 1987-1990
data	Schelz, Charlie		Vegetation: Cover and frequency values by species, SEUG, 1987-1990
data	Schelz, Charlie		Veg notes and VEGA instructions, 1987-1992
data	Schelz, Charlie		Field data sheets for long-term vegetation and substrate transects, Southeast Utah Group

DATA DICTIONARY

TABLE NAME:	Summary data, frequency and cover of vascular plants and substrate	
DESCRIPTION:	Each spreadsheet contains summary data for one year's census of 100 quadrats within a transect. There is a separate spreadsheet for each transect censused each year.	
FORMAT:	MS Excel	
<u>FIELD NAME</u>	<u>FIELD TYPE</u>	<u>FIELD DESCRIPTION</u>
Quads	Integer	Number of quadrats included in each summary number (usually 20)
F1	Integer	Number of quadrats with a frequency of 1
F2	Integer	Number of quadrats with a frequency of 2
F3	Integer	Number of quadrats with a frequency of 3
F4	Integer	Number of quadrats with a frequency of 4
F11	Integer	F1 x 4
F21	Integer	F2 x 3
F31	Integer	F3 x 2
F41	Integer	F4 x 1
COV1	Integer	Number of quadrats with a cover code of 1 (0-5%)
COV2	Integer	Number of quadrats with a cover code of 2 (6-25%)
COV3	Integer	Number of quadrats with a cover code of 3 (26-50%)
COV4	Integer	Number of quadrats with a cover code of 4 (51-75%)
COV5	Integer	Number of quadrats with a cover code of 5 (76-95%)
COV6	Integer	Number of quadrats with a cover code of 6 (96-100%)
C11	Integer	COV1 x 2.5
C21	Integer	COV2 x 15
C31	Integer	COV3 x 37.5
C41	Integer	COV4 x 62.5
C51	Integer	COV5 x 85
C61	Integer	COV6 x 97.5
TFREQ	Integer	Total frequency = F11 + F21 + F31 + F41
PFREQ	Integer	Percent frequency = Total frequency / (# of quadrats x 4)
COVER	Integer	(C11 + C21 + C31 + C41 + C51 + C61) / (# of quadrats)
ABP	Text	A=Annual; B=Biennial; P=Perennial
Park	Text	A=Arches; B=Natural Bridges; I=Island in the Sky District of Canyonlands; M=Maze District of Canyonlands; N=Needles District of Canyonlands; V=VERP transect
Transect	Memo	Transect number and group of quadrats being summarized, e.g., A5.3= Arches transect #5, 3rd group of 20 quadrats

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Species (or substrate type)	Text	The following codes are used for plants and substrate types: LITTER=organic litter; GRAVEL=gravel or individual small rocks <5% of quadrat size; ROCK=rocks, each >5% of quadrat size; CRUS=biological soil crust, which may include the following 4 components: CYAN=cyanobacteria; LICH=lichen; COLLEMA=collema lichen; M=moss. Plant species are described by first 3 letters of genus plus first 3 letters of species. Descriptive terms are used when not identified to species.
PRLC	Text	P=Plant; R=Rock; L=Litter; C=Crust
Year	Integer	96=1996
GFS	Text	G=Grass; F=Forb; S=Shrub
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TABLE NAME:	Individual quadrat data, frequency and cover of vascular plants and substrate	
DESCRIPTION:	Each spreadsheet contains one year's raw census data for the 100 quadrats within a transect. There is a separate spreadsheet for each transect censused each year.	
FORMAT:	MS Excel	
<u>FIELD NAME</u>	<u>FIELD TYPE</u>	<u>FIELD DESCRIPTION</u>
substrate type/species name	Text	The following codes are used for plants and substrate types: LITTER=organic litter; GRAVEL=gravel or individual small rocks <5% of quadrat size; ROCK=rocks, each >5% of quadrat size; CRUS=biological soil crust, which may include the following 4 components: CYAN=cyanobacteria; LICH=lichen; COLLEMA=collema lichen; M=moss. Plant species are described by first 3 letters of genus plus first 3 letters of species. Descriptive terms are used when not identified to species.
1F	Integer	Quadrat #1, frequency value=number of quarter of quadrat in which each substrate component and plant species is first found.
1C	Integer	Quadrat #1, Daubenmire cover value: 1=0-5%; 2=6-25%; 3=26-50%; 4=51-75%; 5=76-95%; 6=96-100%
2F	Integer	Quadrat #2, frequency value as above.
2C	Integer	Quadrat #2, Daubenmire cover value, as above.
3F, 3C, to 100F, 100C	Integer	etc., to Quadrat #100

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